In the Claims:

Please cancel claims 25-27. Please amend the following claims:

~~28~~ 9. (Once amended) The method of claim [26] ~~8~~ 7, wherein said interferon-α2 is encoded by a nucleotide sequence comprising the sequence of SEQ ID NO:6 or a sequence encoding interferon-α which has more than about 70% sequence identity with this sequence.

~~29~~ 10. (Once amended) The method of claim [26] ~~8~~ 7, wherein said interferon-α2 is encoded by a nucleotide sequence comprising the sequence of SEQ ID NO:7 or a sequence encoding interferon-α which has more than about 70% sequence identity with this sequence.

~~30~~ 11. (Once amended) The method of claim [25] 1, wherein 340 ± 100 mg of said interferon-α is obtained from 1 kg of [the biomass] *E. coli* [in step (b)].

Remarks

Applicants respectfully request entry of the foregoing Amendment to claims 28 to 30 after final rejection, and reconsideration of the above captioned application. The foregoing Amendment does not raise new issues which would require further consideration or search and no new matter has been added. Applicants believe the Amendment places the application in condition for allowance. Further, the Amendment clarifies the claimed subject matter and, thus, places the application in a better form for appeal (should such be necessary) by

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What Is Claimed Is:

1. A method for preparing correctly folded and disulfide bond-linked interferon-α by expression in *E. coli*, comprising the steps of:

(a) expressing interferon-α in *E. coli* comprising a vector in which the signal sequence of the gene for the heat stable enterotoxin II (STII) from *E. coli* is operably linked to a sequence which codes for mature human interferon-α; and

(b) isolating the expressed interferon-α.

2. The method of claim 1, wherein said vector further comprises an *E. coli* alkaline phosphatase (phoA) promotor.

~~3.~~ 2 The method of claim 1 wherein said vector further comprises the sequence for the ribosome binding site of the STII gene.

4. The method of claim 1 wherein said isolating step comprises the steps of:

(a) performing chromatography on silica gel;

(b) performing hydrophobic interaction chromatography;

(c) performing exchange chromatography; and

(d) performing exchange chromatography.

~~5.~~ 4 The method of claim ~~4~~ 3, wherein said hydrophobic interaction chromatography employs phenyl ~~sepharose~~ Sepharose™.

~~6.~~ 5 The method of claim ~~4~~ 3, wherein said cation exchange chromatography employs a sulphopropyl ion exchanger.

7. 6 The method of claim 4 3, wherein said anion exchange chromatography employs DEAE-sepharose. Sepharose™

8. 7 The method of claim 1, wherein said interferon-α is interferon-α2.

9. 8 The method of claim 8 7, wherein said interferon-α2 ~~consists essentially of~~ comprises ~~comprising~~ the sequence:

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Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr
Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser
Cys Leu Lys Asp Arg Arg Asp Phe Gly Phe Pro Gln Glu Glu
Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu
His Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys
Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe
Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys
Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile
Thr Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp
Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser Leu Ser
Thr Asn Leu Gln Glu Ser Leu Arg Ser Lys Glu (SEQ ID NO:5).
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10. A method of purifying interferon-α, comprising the steps of:

(a) performing chromatography of crude interferon-α on silica gel;

(b) performing hydrophobic interaction chromatography on the interferon-α obtained in step (a);

(c) performing exchange chromatography on the interferon-α obtained in step (b); and

(d) performing exchange chromatography on the interferon-α obtained in step (c);

whereby purified interferon is obtained.

11. The method of claim 10, wherein said hydrophobic interaction chromatography employs phenyl sepharose.

12. The method of claim 10, wherein said cation exchange chromatography employs sulphopropyl ion exchanger.

13. The method of claim 10, wherein said anion exchange chromatography employs DEAE-sepharose.

14. The method of claim 10, wherein said crude interferon-α was expressed in bacteria.

15. The method of claim 10, wherein said interferon-α is interferon-α2.

16. The method of claim 15, wherein said interferon-α2 consists essentially of the sequence:

Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr
Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser
Cys Leu Lys Asp Arg Arg Asp Phe Gly Phe Pro Gln Glu Glu
Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu
His Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys
Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe
Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys
Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile
Thr Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp
Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser Leu Ser
Thr Asn Leu Gln Glu Ser Leu Arg Ser Lys Glu (SEQ ID NO:7).

17. A vector for expressing interferon-α in *E. coli*, comprising a DNA molecule coding for the signal sequence of the STII gene operably linked to a DNA molecule which codes for mature human interferon-α.

18. The vector of claim 17, wherein said vector further comprises a phoA promotor.

19. The vector of claim 17, wherein said vector further comprises a ribosome binding site of the STII gene.

20. The vector of claim 17, wherein said interferon-α is interferon-α2.

21. The vector of claim 17, wherein said DNA molecule coding for interferon-α consists essentially of the sequence:

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TGT GAT CTG CCT CAA ACC CAC AGC CTG GGT AGC AGG AGG ACC
TTG ATG CTC CTG GCA CAG ATG AGG AGA ATC TCT CTT TTC TCC
TGC TTG AAG GAC AGA CGT GAC TTT GGA TTT CCC CAG GAG GAG
TTT GGC AAC CAG TTC CAA AAG GCT GAA ACC ATC CCT GTC CTC
CAT GAG ATG ATC CAG CAG ATC TTC AAT CTC TTC AGC ACA AAG
GAC TCA TCT GCT GCT TGG GAT GAG ACC CTC CTA GAC AAA TTC
TAC ACT GAA CTC TAC CAG CAG CTG AAT GAC CTG GAA GCC TGT
GTG ATA CAG GGG GTG GGG GTG ACA GAG ACT CCC CTG ATG AAG
GAG GAC TCC ATT CTG GCT GTG AGG AAA TAC TTC CAA AGA ATC
ACT CTC TAT CTG AAA GAG AAG AAA TAC AGC CCT TGT GCC TGG
GAG GTT GTC AGA GCA GAA ATC ATG AGA TCT TTT TCT TTG TCA
ACA AAC TTG CAA GAA AGT TTA AGA AGT AAG GAA (SEQ ID NO:6)
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or a sequence which is more than about 70% homologous with this sequence and said sequence which is said homologous codes for interferon-α.

22. The vector of claim 17, wherein said DNA molecule coding for interferon-α consists essentially of the sequence:

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TGT GAT CTG CCT CAA ACC CAC AGC CTG GGT AGC AGG AGG ACC
TTG ATG CTC CTG GCA CAG ATG AGG AGA ATC TCT CTT TTC TCC
TGC TTG AAG GAC AGA CGT GAC TTT GGA TTT CCC CAG GAG GAG
TTT GGC AAC CAG TTC CAA AAG GCT GAA ACC ATC CCT GTC CTC
CAT GAG ATG ATC CAG CAG ATC TTC AAT CTC TTC AGC ACA AAG
GAC TCA TCT GCT GCT TGG GAT GAG ACC CTC CTA GAC AAA TTC
TAC ACT GAA CTC TAC CAG CAG CTG AAT GAC CTG GAA GCC TGT
GTG ATA CAG GGG GTG GGG GTG ACA GAG ACT CCC CTG ATG AAG
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GAG GAC TCC ATT CTG GCT GTG AGG AAA TAC TTC CAA AGA ATC-
ACT CTC TAT CTG AAA GAG AAG AAA TAC AGC CCT TGT GCC TGG
GAG GTT GTC AGA GCA GAA ATC ATG AGA TCT TTT TCT TTG TCA
ACA AAC TTG CAA GAA AGT TTA AGA AGT AAG GAA (SEQ ID NO:6)

or a sequence which is more than about 70% homologous with this sequence and said sequence which is said homologous codes for interferon-α.

23. A method for preparing correctly folded and disulfide bond-linked interferon-α by expression in *E. coli*, comprising the steps of:

(a) expressing interferon-α in *E. coli* comprising the vector of claim 30; and

(b) isolating the expressed interferon-α.

add B6

add C3

add E1